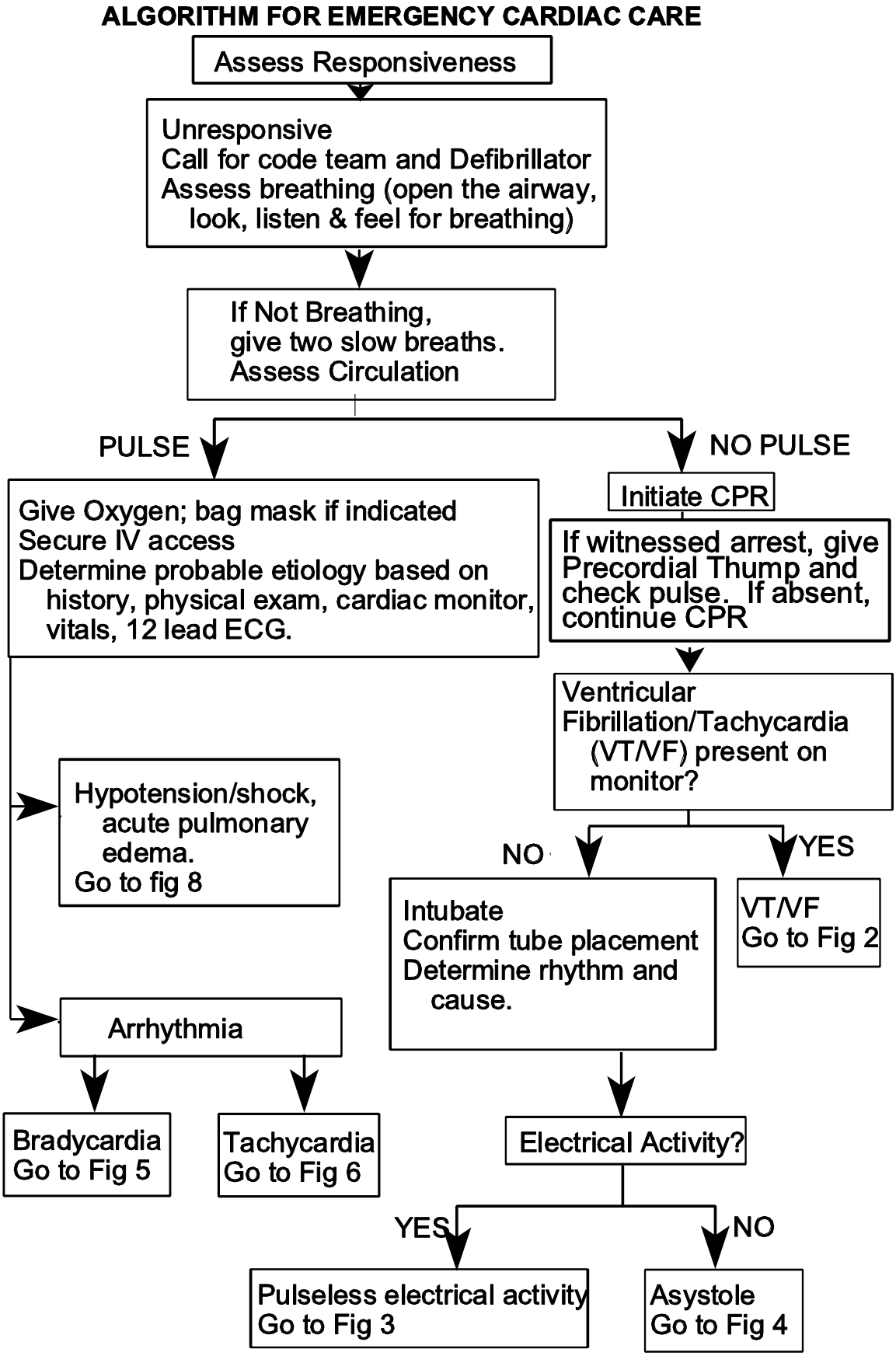
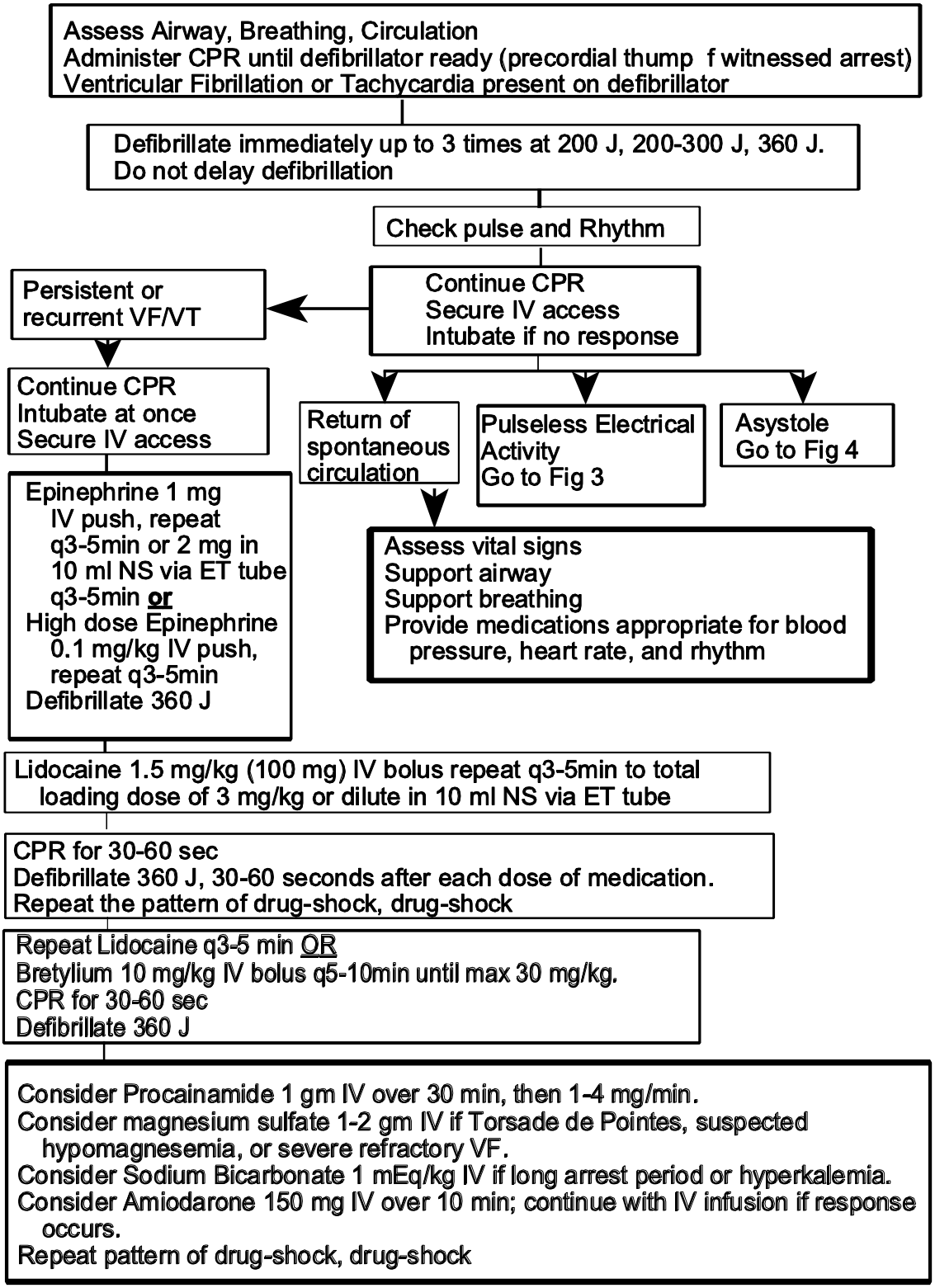


Fig 1 - Algorithm for Adult Emergency Cardiac Care

ALGORITHM FOR VENTRICULAR FIBRILLATION AND PULSELESS VENTRICULAR TACHYCARDIA



Note: Epinephrine, lidocaine, atropine may be given via endotracheal tube at 2-2.5 times the IV dose. Dilute in 10 cc of saline.
After each intravenous dose, give 20-30 mL bolus of IV fluid & elevate extremity.

Fig 2 - Ventricular Fibrillation & Pulseless Ventricular Tachycardia

ALGORITHM FOR PULSELESS ELECTRICAL ACTIVITY

Pulseless Electrical Activity Includes:
- Electromechanical dissociation (EMD)
- Pseudo-EMD
- Idioventricular rhythms
- Ventricular escape rhythms
- Bradyasystolic rhythms
- Postdefibrillation idioventricular rhythms

Initiate CPR, secure IV access, intubate, assess pulse.
Doppler ultrasound assessment of blood flow may be useful

↓

Treat Underlying Cause::
- Hypoxia (ventilate)
- Hypovolemia (infuse volume)
- Pericardial tamponade (pericardiocentesis)
- Tension pneumothorax (needle decompression)
- Pulmonary embolism (thrombectomy, thrombolytics)
- Drug overdose with tricyclics, digoxin, beta or calcium blockers
- Hyperkalemia or hypokalemia
- Acidosis (bicarbonate)
- Myocardial infarction (thrombolytics)
- Hypothemia (active rewarming)

↓

Epinephrine 1.0 mg IV bolus q3-5 min or high dose epinephrine 0.1 mg/kg IV push q3-5 min; may give via ET tube.
Continue CPR

↓

If absolute bradycardia (<60 beats/min) or relative bradycardia, give atroprine 1 mg IV, q3-5 min, up to total of 0.04 mg/kg
Consider bicarbonate, 1 mEq/kg IV (1-2 amp, 44 mEq/amp), if hyperkalemia or other indications.

Fig 3 - Pulseless Electrical Activity

ALGORITHM FOR ASYSTOLE

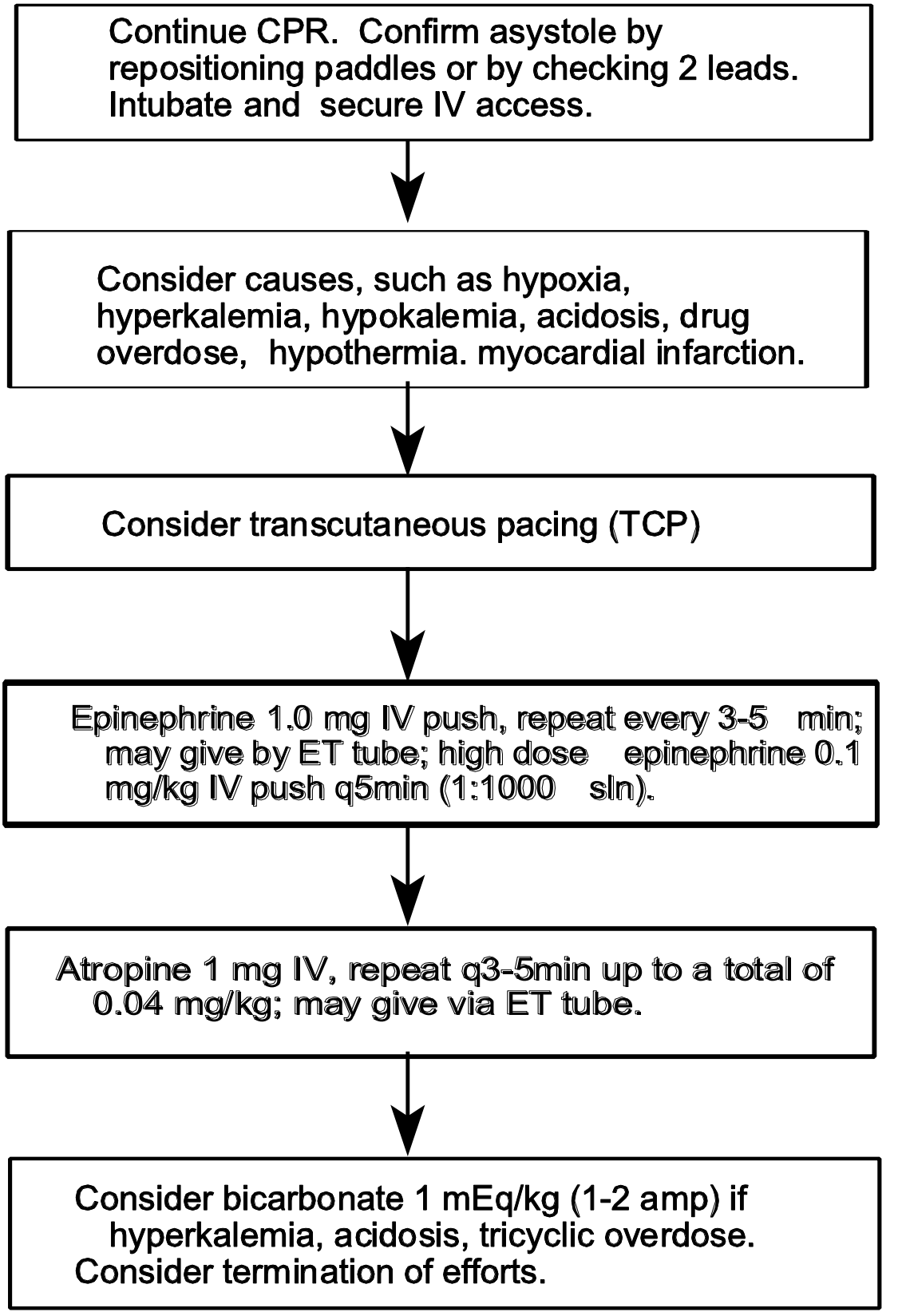


Fig 4 - Asystole

ALGORITHM FOR BRADYCARDIA

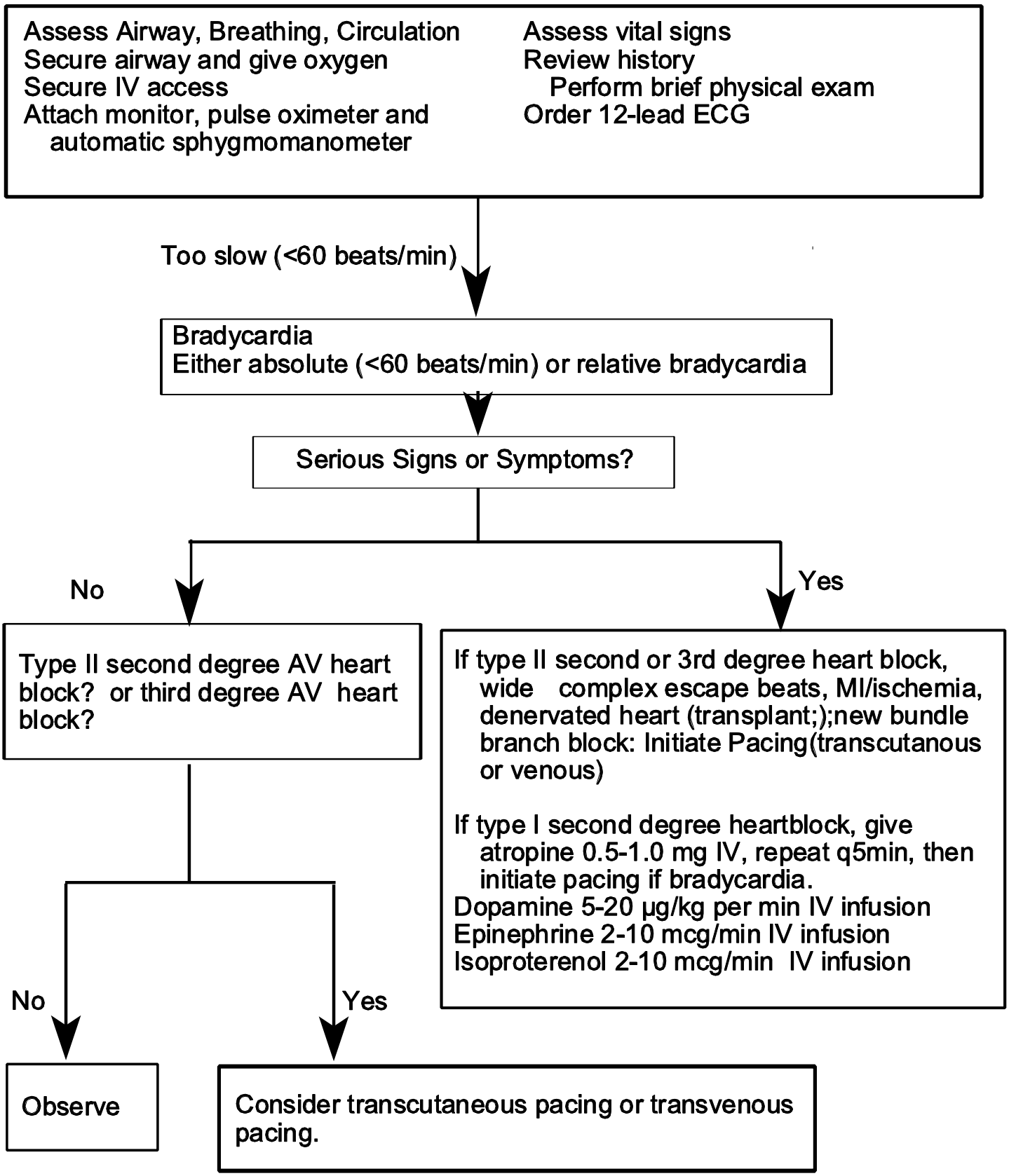


Fig 5 - Bradycardia (with patient not in cardiac arrest).

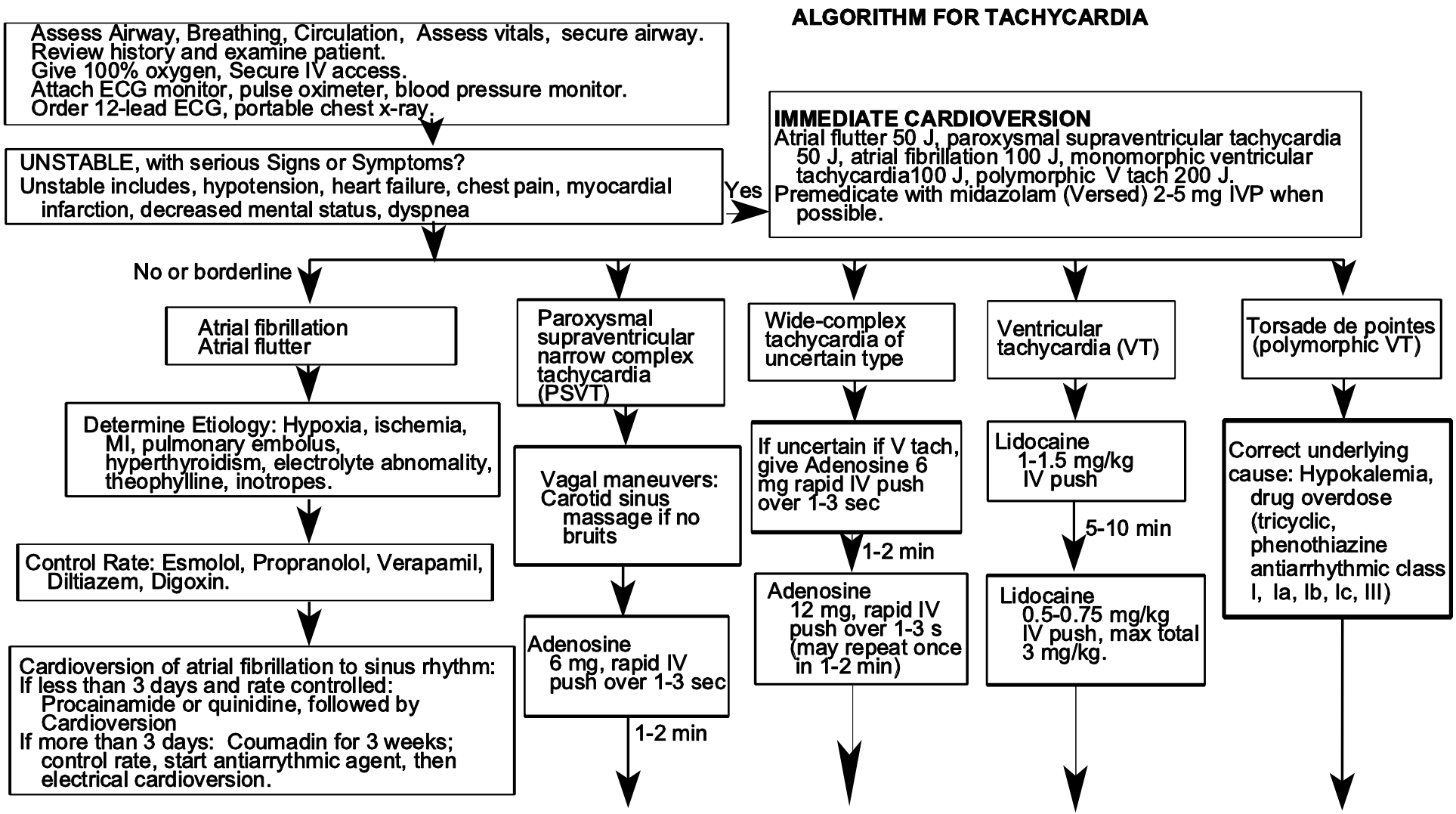


Fig 6 Tachycardia

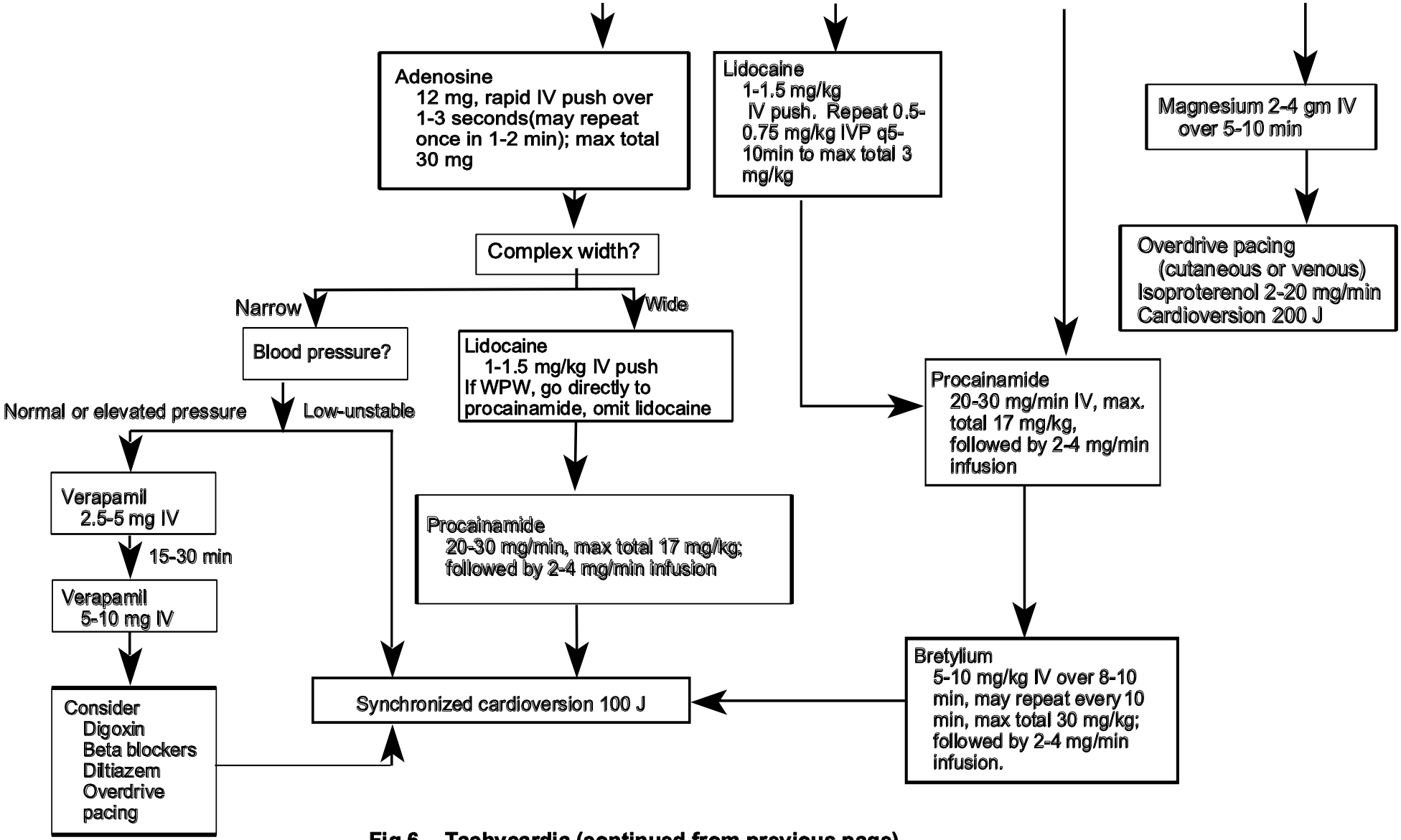


Fig 6. - Tachycardia (continued from previous page)

ALGORITHM FOR STABLE TACHYCARDIA

Stable tachycardia with serious signs and symptoms related to the tachycardia. Patient not in cardiac arrest.

If ventricular rate is >150 beats/min, prepare for immediate cardioversion. Immediate cardioversion is generally not needed for rates <150 beats/min.
Treatment of Stable Patients is based on Arrhythmia Type:

V-Tach: Lidocaine 1-1.5 mg/kg IVP, then 0.5-0.75 mg/kg q5-10min to max total 3 mg/kg. If no response, give Procainamide 20-30 mg/min to max total 17 mg/kg, or Bretylium 5-10 mg/kg over 8-10minutes,q10min to max total 30 mg/kg.

Paroxysmal Supraventricular Tachycardia: Carotid sinus pressure if bruits absent, then adenosine 6 mg rapid IVP, followed by 12 mg rapid IVP x 2 doses to max total 30 mg. If no response, verapamil 2.5-5.0 mg IVP; may repeat dose with 5-10 mg IVP if adequate blood pressure; or Esmolol 500 mcg/kg IV over 1 min, then 50 mcg/kg/min IV infusion, and titrate up to 200 mcg/kg/min IV infusion.

Atrial Fibrillation/Flutter: Digoxin 0.5 mg IVP followed by 0.25 mg IVP q4h x 2-4 doses for rate control, then procainamide 20-30 mg/min IV to total max 17 mg/kg, followed by 2-4 mg/min IV infusion; or quinaglute 15 mg/kg IV over 4-6h, followed by 0.6-0.8 mg/kg/h IV infusion **OR** Diltiazem 0.25 mg/kg IV over 2 min, then 5-15 mg/h IV infusion.

Check Oxygen saturation, Suction device, Intubation equipment. Secure IV access

Premedicate whenever possible with Midazolam (Versed) 2-5 mg IVP or sodium pentothal 2 mg/kg rapid IVP

Synchronized cardioversion

Atrialflutter	50 J
PSVT	50 J
Atrial	100 J
Monomorphic V-tach	100 J
Polymorphic V tach	200 J

Fig 7 - Stable Tachycardia (not in cardiac arrest)

ALGORITHM FOR HYPOTENSION, SHOCK, AND ACUTE PULMONARY EDEMA

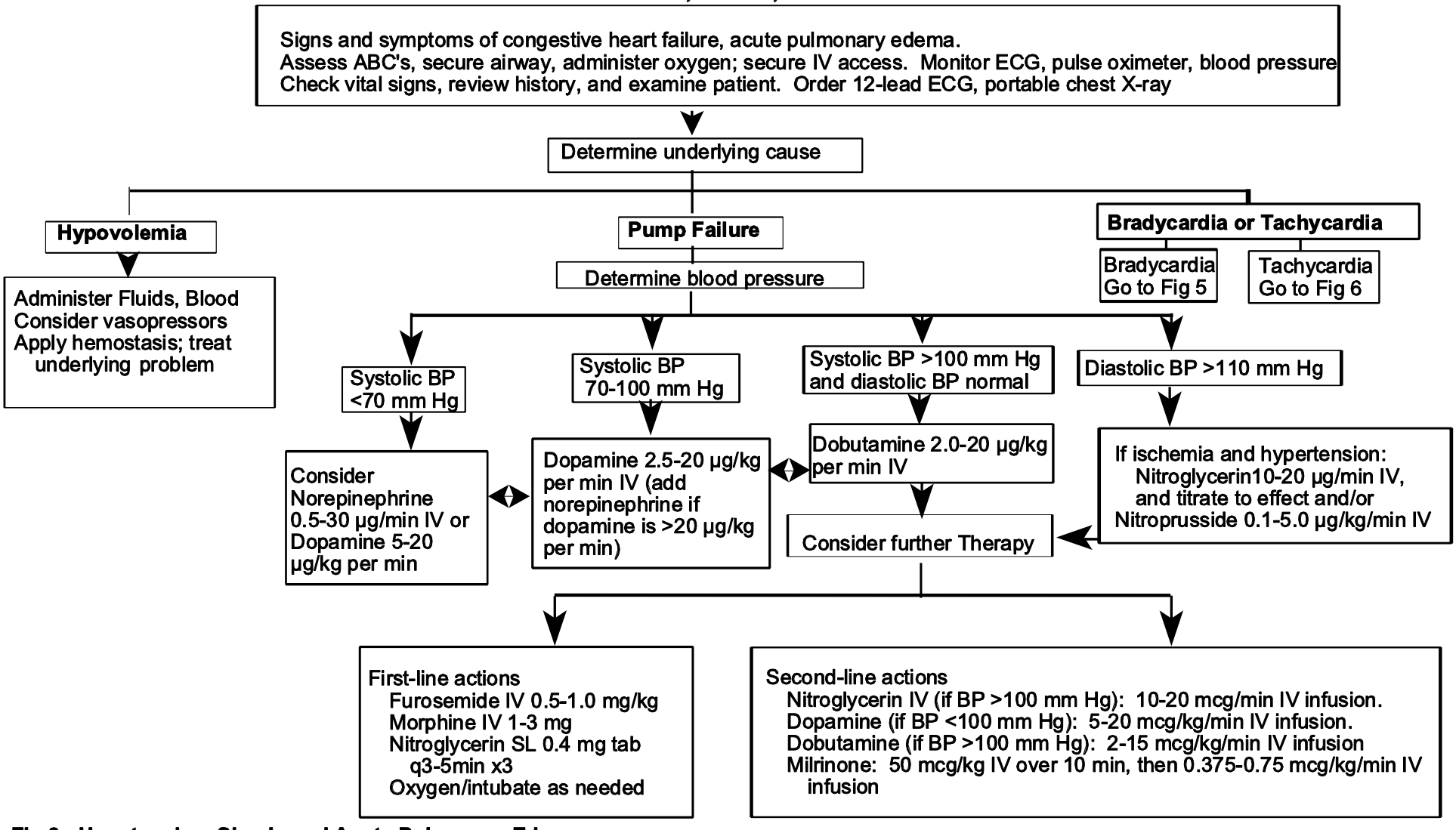


Fig 8 - Hypotension, Shock, and Acute Pulmonary Edema.